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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,443	01/23/2002	Hans-Henning Zutz	31624-177199	1950
26694	7590	04/21/2004	EXAMINER	
VENABLE, BAETJER, HOWARD AND CIVILETTI, LLP P.O. BOX 34385 WASHINGTON, DC 20043-9998			KYLE, MICHAEL J	
			ART UNIT	PAPER NUMBER
			3676	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,443

Applicant(s)

ZUTZ, HANS-HENNING

Examiner

Michael J Kyle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claims 1, 9, and 10, recite limitations for "an axial end face and side walls" for each recess. These limitations are not supported by the specification.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morley et al (U.S. Patent No. 4,421,327) in view of Zutz (U.S. Patent No. 5,762,343).

4. Examiner is considering the embodiment of Morley et al shown in figures 1-5. With respect to claims 1, 9, and 10, Morley et al discloses a slide ring seal assembly comprising a slide ring (58) having an axially extending annular leg (114), the leg having radially outer (82) and radially inner (surface opposite 82) circumferential surfaces, and an axial free end. In addition, Morley et al discloses an annular sealing body (62) surrounding the leg (114) and being seated thereon, and a plurality of circumferentially spaced, radially inward oriented extensions (area between grooves 86) forming part of the annular sealing body. The inward oriented projections extend into recesses formed between lugs (76) on the radially outer surface. The slide ring (58)

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of Morley et al is T-shaped. However, this T-shape, contains at least the L-shape structure that is claimed. Furthermore, applicant has provided no criticality for the use of an L-shape slide ring. For these reasons, examiner considers the T-shape slide ring of Morley et al to be equivalent to the L-shape slide ring claimed by applicant.

5. While Morley et al discloses circumferentially spaced recesses (between lugs 76) provided in the leg at the free axial end thereof, the recesses do not extend from the radially outer surface to the radially inner surface, the recess continuing with an axially extending undercut.
6. Zutz teaches circumferentially spaced recesses (7) provided in a leg of a slide ring assembly at a free end thereof, the recess extending from one surface to another, opposite, surface, and extensions of an annular sealing body (4) projecting into the recesses to improve adherence (column 2, line 67 – column 3, line 3). Zutz further shows the recess to continue with an extending undercut provided in the leg (part of aperture 7, shown in the figure), and the at least one extension of the annular sealing body (4) continues with a projection received by the undercut. The recess includes an end face (portion of 2, abutting 7, shown in the figure) and side walls (portion of 2, abutting 7, in a circumferential direction). The extensions of the sealing body contact both the end face and side walls of the recess. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the axial leg of Morley et al by including recesses as taught by Zutz in order to improve adherence of the seal body to the seal ring. The result of the combination would be a recess extending from the radially outer to the radially inner surface of the axial leg of Morley et al, including an undercut portion with an axial end face and side walls.

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7. With respect to claim 3, Morley et al discloses the leg to have, at the axial free end, on the radially outer surface, a circumferentially extending enlargement (76).
8. With respect to claim 4, Morley et al discloses the seal ring to be generally L-shaped (column 2, line 37) and have a radially extending slide sealing surface (110, 112).
9. With respect to claim 5, Morley et al discloses a pair of sealing rings (56, 58) having their respective slide sealing surfaces in contact (110, 112), and a respective sealing body (60, 62) for each of the sealing rings.
10. With respect to claim 6, Morley et al discloses the sealing ring to be formed of metal (column 4, line 3) and the sealing body to be formed of a resilient material ("elastomeric", column 4, lines 4 and 5).
11. With respect to claim 7, Morley et al discloses the sealing body to have a generally trapezoidal cross-section (see figures).
12. With respect to claim 8, Morley et al discloses the annular sealing body (62) to be seated on the leg under radial pressure (column 5, lines 45-47).
13. Claims 1 and 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the first embodiment of Morley et al (figures 1-5, "Morley's first embodiment") in view of the second embodiment of Morley et al (figure 6, "Morley's second embodiment") and Zutz.
14. With respect to claims 1, 9, and 10, Morley's first embodiment discloses a slide ring seal assembly comprising a slide ring (58) having an axially extending annular leg (114), the leg having radially outer (82) and radially inner (surface opposite 82) circumferential surfaces, and an axial free end. In addition, Morley's first embodiment discloses an annular sealing body (62)

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surrounding the leg (114) and being seated thereon, and a plurality of circumferentially spaced, radially inward oriented extensions (area between grooves 86) forming part of the annular sealing body. The inward oriented projections extend into recesses formed between lugs (76) on the radially outer surface. The slide ring (58) of Morley et al is T-shaped. For the reasons discussed in paragraph 2 of this Office action, examiner believes the T-shape of Morley's first embodiment can be properly used to show an L-shape. However, to more clearly show a slide ring with a cross section having an L-shape, the examiner relies on the teachings of Morley's second embodiment, shown in figure 6.

15. Morley's second embodiment teaches a slide ring seal assembly comprising a slide ring (144) having an L-shaped cross section and an axially extending annular leg (shown in figure 6) the leg having radially outer (upper surface contacting 156 in figure 6) and radially inner (lower surface opposite upper surface) circumferential surfaces, and an axial free end. In addition, Morley's second embodiment discloses an annular sealing body (156) surrounding the leg and being seated thereon. Morley's second embodiment uses an L-shaped slide ring, rather than a T-shaped slide ring in order to use less material, which is important when the slide rings are made from expensive alloys (column 7, lines 2-4). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Morley's first embodiment as taught by Morley's second embodiment, such that the slide ring has an L-shaped cross section, in order to use less material.

16. Zutz teaches circumferentially spaced recesses (7) provided in a leg of a slide ring assembly at a free end thereof, the recess extending from one surface to another, opposite, surface, and extensions of an annular sealing body (4) projecting into the recesses to improve

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adherence (column 2, line 67 – column 3, line 3). Zutz further shows the recess to continue with an extending undercut provided in the leg (part of aperture 7, shown in the figure), and the at least one extension of the annular sealing body (4) continues with a projection received by the undercut. The recess includes an end face (portion of 2, abutting 7, shown in the figure) and side walls (portion of 2, abutting 7, in a circumferential direction). The extensions of the sealing body contact both the end face and side walls of the recess. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the axial leg of Morley's first embodiment by including recesses as taught by Zutz in order to improve adherence of the seal body to the seal ring.

17. With respect to claim 3, Morley's first embodiment discloses the leg to have, at the axial free end, on the radially outer surface, a circumferentially extending enlargement (76).

18. With respect to claim 4, Morley's first embodiment discloses the seal ring to be generally L-shaped (column 2, line 37) and have a radially extending slide sealing surface (110, 112).

19. With respect to claim 5, Morley's first embodiment discloses a pair of sealing rings (56, 58) having their respective slide sealing surfaces in contact (110, 112), and a respective sealing body (60, 62) for each of the sealing rings. Morley states that these sealing surfaces do not lie radially outwardly of the respective outer diameters of the axial legs (64, 114) of the slide rings (column 6, lines 22-25). Based on this explanation, the slide sealing surfaces (110, 112) may still be used on a slide ring having an L-shaped cross section, rather than a T-shape.

20. With respect to claim 6, Morley's first embodiment discloses the sealing ring to be formed of metal (column 4, line 3) and the sealing body to be formed of a resilient material ("elastomeric", column 4, lines 4 and 5).

21. With respect to claim 7, Morley's first embodiment discloses the sealing body to have a generally trapezoidal cross-section (see figures).

22. With respect to claim 8, Morley's first embodiment discloses the annular sealing body (62) to be seated on the leg under radial pressure (column 5, lines 45-47).

Response to Arguments

23. Applicant's arguments filed February 5, 2004, have been fully considered but they are not persuasive. Applicant argues that neither Morley et al nor Zutz discloses the slide ring having an L-shaped cross section. The slide ring (58) of Morley et al shown in figures 1-5 is T-shaped. However, this T-shape, contains at least the L-shape structure that is claimed. Furthermore, applicant has provided no criticality for the use of an L-shape slide ring. For these reasons, examiner considers the T-shape slide ring of Morley et al to be equivalent to the L-shape slide ring claimed by applicant.

24. Additionally, the examiner has included a new grounds of rejection. All claims are now also rejected under 103(a) as being unpatentable over Morley's first embodiment over Morley's second embodiment and Zutz. Morley et al discloses a second embodiment (in figure 6), where the slide ring has an L-shaped cross section. Morley et al states that the slide ring of this embodiment uses less material, which is important when slide rings are made from expensive alloys.

Conclusion

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25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Kyle whose telephone number is 703-305-3614. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

26. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on 703-308-2978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

27. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mk



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